

**Amendments to the Claims:**

Claims 1-34 (Canceled)

35. (New) A method, comprising:

providing a first material which includes at least one metal element;

providing a second material which includes at least one chalcogen element; and

reacting the first and second materials together to provide a third material which includes a compound of the chalcogen and metal elements.

36. (New) The method of claim 35, wherein the first material includes a solvent.

37. (New) The method of claim 35, wherein the second material includes a compound material of the chalcogen and at least one element selected from groups 13-15 of the periodic table of the elements.

38. (New) The method of claim 37, wherein the second and third materials are provided in response to an amount of heat.

39. (New) The method of claim 35, wherein the second and third materials are provided in response to first and second amounts of heat, respectively, the second amount of heat being greater than the first amount of heat.

40. (New) The method of claim 35, wherein the second and third materials are provided in response to first and second amounts of heat, respectively, the second amount of heat being less than the first amount of heat.

41. (New) A method, comprising:

- providing a first material which includes a metal element;
- providing a second material which includes a chalcogen element;
- providing a third material;
- providing a first amount of heat to form a fourth material from the second and third materials, the fourth material including the chalcogen element; and
- providing a second amount of heat to form a fifth material, the fifth material including a compound of the chalcogen and metal elements.

42. (New) The method of claim 41, wherein the fifth material is formed in response to a reaction between the first and fourth materials.

43. (New) The method of claim 41, wherein the step of providing the second amount of heat also includes forming a sixth material which is a compound of the third material.

44. (New) The method of claim 41, wherein the third material includes at least one element selected from groups 13-15 of the periodic table of the elements.

45. (New) The method of claim 41, wherein the fifth material includes nanocrystals of the compound.

46. (New) The method of claim 45, wherein at least a portion of the nanocrystals operate as a nanowire.

47. (New) The method of claim 45, wherein the nanocrystals absorb a desired wavelength range of light.

48. (New) The method of claim 45, wherein the dimensions, shape, composition, and/or absorption wavelength of the nanocrystals is adjustable in response to the first amount of heat, second amount of heat, the type of metal element, the concentration of the metal element, the type of chalcogen element, and/or the concentration of the chalcogen element.

49. (New) A method, comprising:

- providing a first material which includes a metal element;
- providing a chalcogen material which includes a chalcogen element;
- providing a second material which is reactive with the chalcogen material;
- reacting the chalcogen and second materials together to form a third material; and
- reacting the first and third materials together to form a fourth material, the fourth material including a compound of the chalcogen and metal.

50. (New) The method of claim 49, wherein the second material includes at least one element selected from groups 13-15 of the periodic table of the elements.

51. (New) The method of claim 49, wherein the third material includes a compound of the chalcogen element and second materials.

52. (New) The method of claim 49, wherein the first material includes a solvent.

53. (New) The method of claim 49, wherein the chalcogen and second materials are reacted at a first temperature for a first

time and the first and third materials are reacted at a second temperature for a second time, wherein the second temperature is less than the first temperature.

54. (New) The method of claim 53, wherein fourth material includes nanocrystals, the dimensions, composition, and/or absorption wavelength of the nanocrystals being adjustable in response to at least one of the first temperature, second temperature, first time, and second time.